

2. On the Arm-glands of the Lemurs.

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In 1884 Mr. Beddard made a communication to this Society, "On some Points in the Structure of *Hapalemur griseus*"¹. In this paper attention was drawn to a very singular patch of spines on the flexor aspect of the forearm, represented in the accompanying drawing (fig. 1).

Fig. 1.



The forearm of *Hapalemur griseus*, showing the patch of spine-like processes and the tuft of hairs.

In a postscript to his paper Mr. Beddard was able to state that this collection of spines was not a sexual character, but exists in both sexes of *Hapalemur griseus*, while it is unrepresented in *Hapalemur simus*. Mr. Beddard applied for information to Dr. Jentink and to Prof. A. Milne-Edwards. These gentlemen very kindly examined the large series of examples of the two species preserved in the Museums of Leyden and Paris, and found that *Hapalemur griseus* is distinguished from *H. simus* by a patch of spines upon the arms, which, however, shows certain differences in the two sexes. In the females the spines are replaced by hairs, but the patch as a whole is quite distinct from the rest of the integument of the arm. Dr. Jentink furthermore directed his attention to a possibly similar structure (a climbing-organ?) upon the arm of *Lemur catta*, which has the form of a horny outgrowth somewhat like the spur of a cock. At the time Mr. Beddard was engaged in dissecting *Hapalemur* he kindly afforded me every opportunity for examining this curious structure on its forearm. This part in question Mr. Beddard describes thus:—

¹ See P. Z. S. 1884, p. 391.

“On the inner side of the forearm close to the wrist is an oval patch of spine-like processes, about one inch long and one third of an inch broad in the middle. The spines are longest in the middle portion of the patch, and decrease in length towards both extremities. Examined with a hand-lens they present the appearance of being composed of a number of fine threads closely bound

Fig. 2.



The forearm of *Chirogalous coquereli*, showing the tuft of long hairs. The larger one is the forearm of *Lemur catta*, showing the raised patch of hairless skin covering the collection of sweat-ducts. The tuft of long hairs is also shown.

together; the extremity of the spines is blunt, and the longer ones are somewhat curved and overlap each other. The patch of integument which bears these spines is sharply marked off from the surrounding integument, and no transitional forms between the hairs of the general body-surface and these peculiar spines could be observed.” When the skin of the arm was removed an oval gland of the size and shape of an almond corresponded to this patch of spines on both arms, but no duct could be detected in connexion with the gland.

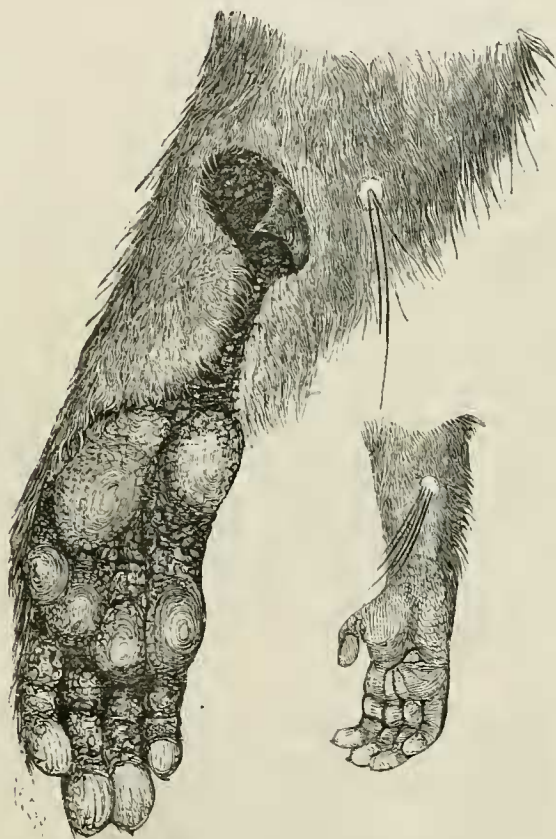
These observations possessed for me extreme interest, for I felt assured that the patch of spines was in reality formed by the hardened secretion of the gland underlying them. At once I began to accumulate material for an inquiry into the comb-like organ on

the arm of *Lemur catta*, and was enabled to make some preliminary observations concerning it in the 'Journal of Comparative Medicine and Surgery,' New York, Jan. 1887.

The comb-like organ on the arm of *Lemur catta* may be thus described:—

It is situated about two inches above the wrist-joint, on the flexor aspect, and in a young Lemur is about three-eighths of an inch in length. It is of an oval shape, soft, compressible, and

Fig. 3.



Forearm of an adult *Lemur catta*, showing the blunt spur described in the text.

The smaller figure is the arm of a foetal *Lemur catta*, to show the tuft of long hairs.

marked with fine lines like the tip of the finger, and of a black colour. The organ is raised above the general level of the integument to the extent of an eighth of an inch. Its major axis lies in the long axis of the limb, and it is continuous with the palm of the hand by a narrow strip of black hairless skin. The organ is present in the male and female. In older Lemurs a hard callous projecting spur is seen on its inner side.

This spur or projection in *Lemur catta* resembles, on a large scale, the spines on the arms of *Hapalemur*, and I have no doubt

that they both arise in the same way, viz. by exposure and subsequent hardening of the secretion peculiar to the gland; for on submitting the smooth oval patch to microscopic examination, I was delighted to find that it covered a collection of glands resembling sweat-glands, each gland being tubular and provided with a distinct duct, but occasionally two ducts would unite near the point where they opened on the patch of smooth skin. As many as fifteen of these ducts can be counted in a single fine section through the patch; therefore the number of the orifices may be estimated at somewhere about seven hundred, and in some cases perhaps as many as a thousand.

On examining the forearm of a foetal *Lemur catta* I found a cluster of long stiff hairs associated with some large sebaceous glands and at once, though hastily, concluded that this must correspond to those which I have just described. On examining the arm of *Lemur macaco* and *Chirogaleus coquereli* some similar long hairs associated with glands were also detected. On carefully re-examining the arm of *Lemur catta*, it turned out that this peculiar gland is also represented, as seen in fig. 4, which will illustrate its appearance and situation far better than a verbal description.

The tuft of hairs with their glands occurs in all the Lemurs I have been able to examine alive in the Society's gardens and in dried skins in the Prosector's room, as well as in *Hapalemur*. Singularly it is absent in the West-African Lemur, *Perodicticus potto*.

The intention of the paper is two-fold:—1. To call attention to the glands underlying the smooth raised heap of black skin in *Lemur catta*; 2. To draw attention to the tuft of long hairs near it, and its representative in the arm of other Lemurs.

Finally I am of opinion that the spur in *Lemur catta* and the patch of spines in *Hapalemur* are formed of the dried secretions peculiar to the glands.

3. Contributions to the Anatomy of Earthworms.—Nos. I., II., III. By FRANK E. BEDDARD, M.A., F.R.S.E., Prosector to the Society, and Lecturer on Biology at Guy's Hospital.

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(Plate XXXIII.)

- I. On the Structure of *Eudrilus sylvicola*, p. 372.
- II. Further Note on the Reproductive Organs of *Acanthodrilus*, p. 387.
- III. Note on the Genital Setæ of *Perichæta houlletii*, p. 389.

I. ON THE STRUCTURE OF *Eudrilus sylvicola*. (Plate XXXIII.)

Mr. W. L. Sclater has kindly presented me with a number of Earthworms which he collected in British Guiana; among these are a few specimens of a species of *Eudrilus* which proves to be new to science. The worms were carefully preserved and have proved to be in an excellent condition for microscopical investigation.